IN THE EUROPEAN PATENT OFFICE

PATENT COOPERATION TREATY
International Preliminary Examining Authority
Attn: T. Timonen

In Re International Application of: THE GOVERNMENT OF THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, CENTERS FOR DISEASE CONTROL AND PREVENTION

International Application No.: PCT/PCT/US2004/032378
International Filing Date: 01 October 2004 (01.10.2004)

For: AIR-SAMPLING DEVICE AND METHOD OF USE

Date: 05 January 2006

RESPONSE TO NOTIFICATION CONCERNING INFORMAL COMMUNICATIONS WITH THE APPLICANT

European Patent Office
Erhardstrasse 27
D-80331 Munich
GERMANY

Via Facsimile No. 011 49 89 2399 4465
Confirmation via DHL No. 776 2895 114

Dear Officer Timonen:

In response to the Notification Concerning Informal Communications with the Applicant mailed on 09 December 2005, replacement pages 25, 26, 29 and 30, including amendments to claims 12 and 34-39, are enclosed for consideration during preliminary examination under Article 34. Please replace pages 25, 26, 29 and 30 of the international application with the attached replacement pages 25, 26, 29 and 30. In the attached replacement pages, claims 12, 34 and 35 have been amended, and claims 37-39 have been amended and re-numbered as claims 36-38. The subject matter of original claim 36 has been added to claim 34. The remaining claims are unchanged.

The Notification summarizes a telephone conference conducted on 05 December 2005, between Officer Timonen and Applicant's representative. As stated in the Notice, Officer Timonen gave the opinion that the independent claims would meet the international requirements for patentability if amended to include the following features: (i) the collection vessel is a microcentrifuge tube having an open end that is orthogonal to a line extending longitudinally with respect to the tube and (ii) the air-inlet conduit extends at an angle that is non-parallel and non-orthogonal with respect to a plane that is parallel to the open end of the tube. Independent claims 12 and 34 have been amended to include these features.

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With respect to independent claims 1 and 22, Applicant submits that these claims recite subject matter that is patentable over D1 and D2 for the reasons stated in the Response to Written Opinion dated 16 August 2005.

Please telephone the undersigned at the telephone number listed below if anything further is required.

Respectfully submitted,

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cc: Docketing

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7. The apparatus of claim 6, wherein the first passageway extends generally tangentially with respect to an inner surface of the collection vessel.

8. The apparatus of claim 1, wherein:

the collection vessel is a first collection vessel, the air-inlet conduit comprises a first air-inlet conduit, and the air-outlet conduit comprises a first air-outlet conduit; and

the retaining member is adapted to be removably coupled to a second collection vessel, the retaining member further comprising a second air-inlet conduit and a second air-outlet conduit, the first air-outlet conduit being in fluid communication with the second air-inlet conduit so that air flowing through the first air-outlet conduit flows into the second collection vessel through the second air-inlet conduit and exits the second collection vessel through the second air-outlet conduit, the second air-inlet conduit and second air-outlet conduit being configured to establish a cyclonic flow path in the second collection vessel to cause airborne particles to separate from the air flowing through the second collection vessel.

9. The apparatus of claim 8, wherein the particles deposited in the first collection vessel are generally larger than the particles deposited in the second collection vessel.

10. The apparatus of claim 8, wherein the retaining member is configured to support the first and second collection vessels in the same orientation.

11. The apparatus of claim 10, wherein the retaining member is configured to support the first and second collection vessels in a generally vertically upright orientation.

12. An apparatus for use in collecting airborne particles comprising:

a collection vessel in which airborne particles are collected for analysis, the collection vessel comprising a microcentrifuge tube having an open end that is orthogonal to a line extending longitudinally with respect to the tube;

an air-inlet conduit for conducting air into the collection vessel, the air-inlet conduit extending at an angle with respect to a plane that is parallel to the open end, the air-inlet conduit being non-orthogonal and non-parallel to said plane; and

an air-outlet conduit for conducting air out of the collection vessel;

wherein the air-inlet conduit and the air-outlet conduit are situated to cause air flowing through the collection vessel to create a vortex, thereby causing airborne particles to separate from the air flowing through the collection vessel.

13. The apparatus of claim 12 wherein:

the collection vessel is a first collection vessel, the air-inlet conduit comprises a first air-inlet conduit, and the air-outlet conduit comprises a first air-outlet conduit; and

the apparatus further comprises:

a second collection vessel;

a second air-inlet conduit in fluid communication with the first air-outlet conduit so that air flowing through the first air-outlet conduit is conducted into the second collection vessel through the second air-inlet conduit, the second air-inlet conduit being non-orthogonal to a line extending longitudinally with respect to the second collection vessel; and

a second air-outlet conduit for conducting air out of the second collection vessel;

wherein the second air-inlet conduit and the second air-outlet conduit are situated to cause air flowing through the second collection vessel to create a vortex, thereby causing airborne particles to separate from the air flowing through the second collection vessel.

14. The apparatus of claim 13, wherein the first collection vessel is supported in the same orientation as the second collection vessel.

28. The method of claim 27, wherein the particles collected in the second collection vessel are generally smaller than the particles collected in the first collection vessel.

29. The method of claim 27, further comprising performing an analysis on the particles that are collected in the second collection vessel.

30. The method of claim 27, wherein the analysis is performed while the particles are still in the second collection vessel.

31. The method of claim 22, wherein the analysis of the particles is performed while air is flowing through the collection vessel.

32. The method of claim 22, wherein the particles are bioaerosols.

33. The method of claim 22, wherein the particles collected in the collection vessel are approximately equal to and greater than 2 microns in size.

34. A method for collecting airborne particles for analysis, the method comprising:

flowing air through the open end of a microcentrifuge tube along a flow path in a direction that extends generally tangentially with respect to an inner surface of the microcentrifuge tube, the open end being orthogonal to a line extending longitudinally with respect to the tube, the flow path being non-orthogonal and non-parallel to a plane defined by the open end, wherein the air flowing through the microcentrifuge tube establishes a cyclone; and

separating airborne particles from the air flowing through the microcentrifuge tube.

35. The method of claim 34, wherein the air flowing through the microcentrifuge tube establishes a reverse-flow cyclone.

36. The method of claim 34, wherein the air flowing into the microcentrifuge tube is conducted through an inlet conduit of an air-flow fitting coupled to the microcentrifuge tube, and wherein air flowing out of the microcentrifuge tube is conducted through an outlet conduit of the air-flow fitting.

37. The method of claim 34, wherein air flowing outwardly from microcentrifuge tube is conducted into a secondary collection vessel to further separate airborne particles from the air flow.

38. The method of claim 33, further comprising performing an analysis on the particles that are separated from the air flowing through the microcentrifuge tube.